

## Instructions

- Questions are ambiguous, and may require long answers.
  - Some questions don't make any sense. That is intentional. Don't worry they don't have a weightage.
  - Some questions have more weightage than others.
  - There is no word limit.
  - Please try to write neatly. Please.
  - Duration = 1.5hrs
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## Questions

1. In how many ways can you reboot a system? It does not have to be a clean reboot.
  2. You have a system that is showing a very high load value. What all can cause this to happen.
  3. Suppose I tell you that in the above scenario, no process is consuming the CPU time. How will you find the root cause of the problem.
  4. How can you "safely" cause huge spikes in CPU load without killing the system? Multiple valid methods exist. List all that you can think of.
  5. R D S Z T. What do the above process states mean?
  6. What is your favorite shell and why? Megumin likes the M107 155mm high explosive (HE) projectile for howitzers of the United States Army and United States Marine Corps'.
  7. What is interruptible sleep? How is it different from uninterruptible sleep?
  8. I find that MAC addresses are unique for each vendor, and so I run a arp scan for proxy from my room. And I see that it shows me the MAC address for a realtek chip. The chip actually in proxy is broadcom. What might have gone wrong?
  9. I have a long running script that does heavy computation, and I cannot kill the script. I cannot run it again. I cannot use a new shell. How do I run a command in the same shell?
  10. What are iptables states? How do you use it?
  11. If UDP is stateless why and how is it possible to have UDP iptables states?
    - Hint: What states do you think / guess that UDP has? Who maintains these states?
    - Hint: What did UDP mean when it called itself stateless?
  12. How do you apply an iptables rule?
    - What if the connection is already made, i.e. ESTABLISHED?
    - What if the connection is not already made yet, i.e. RELATED / NEW?
  13. What is the iptables RELATED state? Give an example of anything that you know of that uses RELATED state.
  14. What is the purpose of the executable permission on a folder? What would happen if I remove that permission?
  15. How do I remove a file called "-f"?
  16. What is the difference between httpd and apache2?
  17. I try to kill a program with Control-C. But it is not responding. Now what do I do?
    - Make assumptions about what program it is, and try to think of what my possible steps to fix this will be.
- Do I even need to fix this? What is a good point of allowing a program to do this?
18. What happens when you send a process a SIGKILL?
  19. What does the following do?

```
#!/bin/sh
echo "hello world"
world"
```

```
V/S
```

```
#!/bin/bast
echo "hello
```

Which of these actually call /bin/echo? Which one does not? What does it call then?

20. There exists a /bin/call/me/maybe. How do you call it "maybe"? How do you call it "later"?

21. Please explain in as much detail as you can, as to why many modern linux distributions do not use the raw kernel images from kernel.org. And also explain why a linux kernel having version 2.x is

